

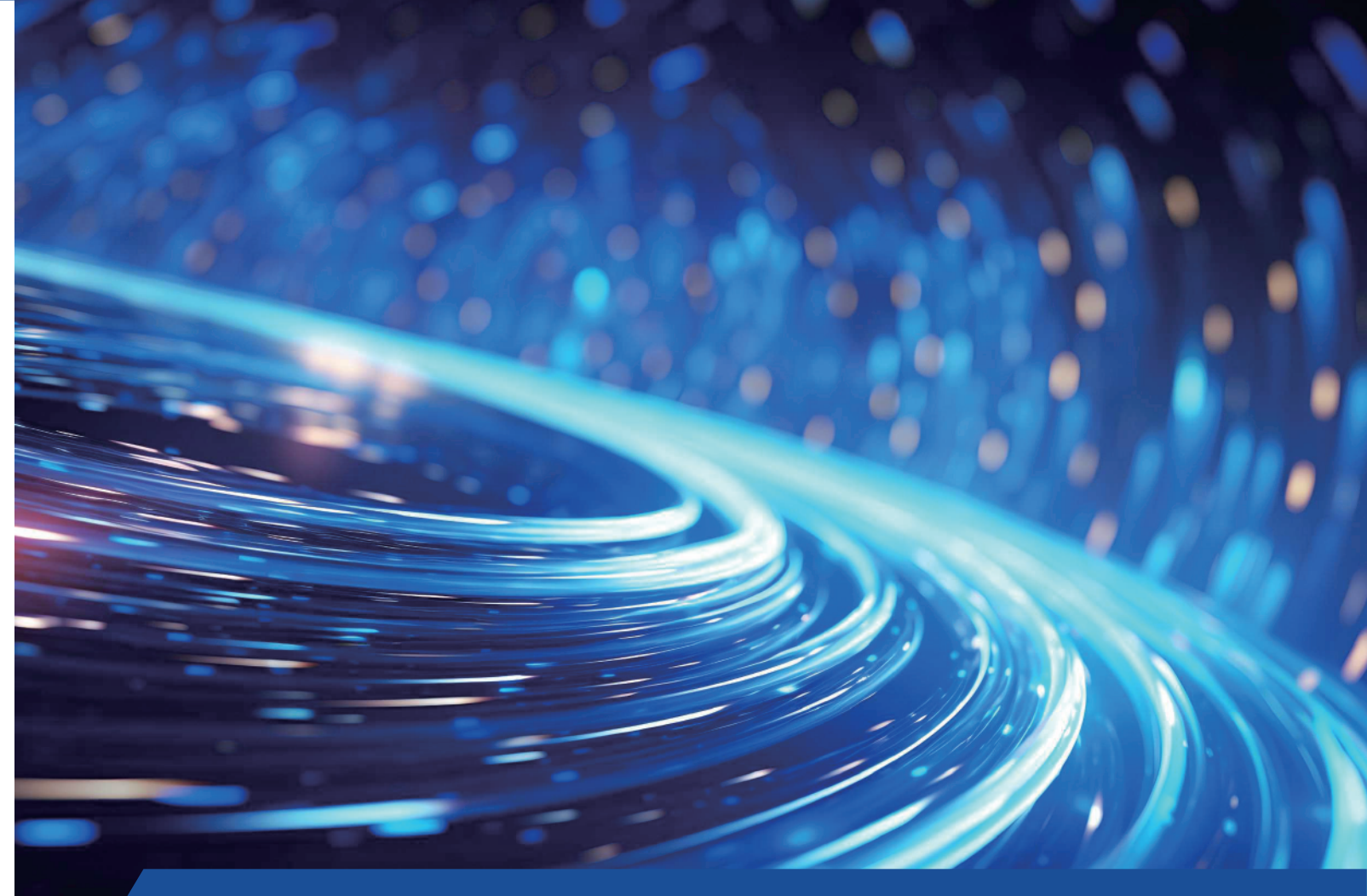


0512-57107368

Kunshan headquarters

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Version NO. :CN202503MTL



Flexible Transport System



www.ksfhs.com

GROUP
OVERVIEW



2010

Founded in 2010

Established in 2010, FHS is headquartered in Kunshan, Jiangsu Province, and is committed to delivering cost-effective and well-engineered automation solutions. The company continuously redefines assembly automation and provides world-class intelligent, digital, and flexible production solutions to leading global clients in the new energy sector, automotive OEMs, and automotive component industries.

With over a decade of experience in R&D for production line equipment and a proven track record in delivering intelligent, high-standard projects worldwide, FHS has established itself as an industry leader in the manufacturing of power batteries, energy storage products, motors, and electronic control systems. The company has earned multiple accolades from clients, including distinctions such as "Five-Star Supplier," "Excellent Supplier," "Best Customer Satisfaction Award," and recognition as an "Advanced Team in Production Guarantee."

Drawing on extensive project experience and technological expertise in new energy, medical, and automotive automation, FHS continues to break new ground in smart magnetic drive and maglev transport technology. Its FTS intelligent maglev transport system has received widespread recognition, including the 2023 Zu Chongzhi Excellent Plan Gold π Award and selection as a 2024 Suzhou Key Core Technology Breakthrough Project. FHS delivers high-intelligence, high-flexibility, high-value transport solutions for smart manufacturing.

With a strong base in East China, FHS's influence spans nationwide and globally. It operates branches and subsidiaries in key Chinese cities like Wuhu, Wuhan, Chongqing, Shenzhen and Dalian. Internationally, FHS has expanded with subsidiaries in the United States, Germany and Hungary, maintains a robust after-sales service network and partnerships across several countries, including Spain, France, Czech Republic, Romania, Mexico, Poland, India, and South Korea showcasing its expansive and diverse global footprint.

2500+

2500+ Employees around the world

Intelligent
Manufacturing Business
Core Data At A Glance

Top global customers	Proportion of R&D headcount	Patents
30+	60% (average working experience >8 years)	300+
Lines of Business	Equipment delivery capability	Intelligent Research Institute
3	100+ per year	1
Simultaneous delivery capacity	Production	Laser Lab
USD 150 million+	150k+ m ²	1
Project experience	Standardized process in library	Software Lab
3000+	5000+	1

FHS Global Headquarters, Kunshan



FHS Wuhu Company



CORPORATE CULTURE

VISION

To become a prestigious
global smart
manufacturing enterprise

MISSION

To seek happiness
for employees
To create value for partners

VALUES

Customer orientation;
Perseverance;
Innovation;
Sharing value

CONTENTS

- 01** ▪ Group Profile
- 02** ▪ Flexible Transport System
- 03** ▪ Product Series & Selection Guide
- 04** ▪ Software Platform
- 05** ▪ Overview of FHS Maglev Solutions

FTS Flexible Transport System

Utilizing linear motor technology, the FTS precisely controls electromagnetic force to drive magnet-equipped mover with speed and precision. Designed for intelligent manufacturing, this advanced transfer system combines magnetic drive motor modules, a control system, and a circular guide rail to deliver high-speed, high-precision, and highly flexible transport.



High Efficiency

High speed and acceleration
High precision, no secondary positioning needed



Flexible & Modular

Modular design
Each mover independently controlled



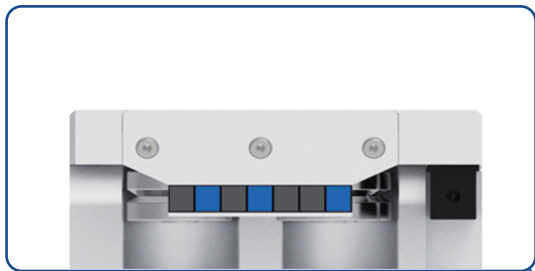
Smart Control

Distributed, parallel debugging
Accelerated production, greater efficiency

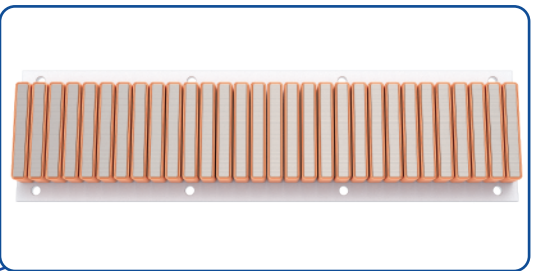


Space Saving

Compact module footprint
Minimizes need for secondary handling



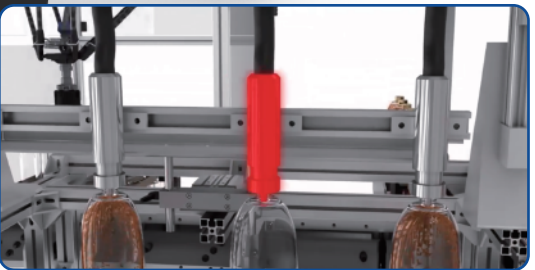
Ready upon Startup
High Speed Production



Iron Core Motor for Superior
Magnetic Drive Performance



Visual Scenario Creation
What You See Is What You Get



Defect Detection
Efficient Scheduling



FTS Medium Thrust Series (FTS-MT)



±0.01 mm
Repeatability




5-40 kg
Single Mover Load Range





847 N
Max. Thrust





5 m/s
Max. Speed


- 

Quick mover and tooling replacement for different product types
- 

Modular design adapts to various production needs
- 

Customizable workstations with expandable motor integrated modules and movers
- 

Designed for long-term use with multiple product iterations and process upgrades
- 

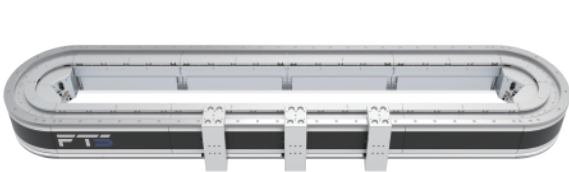
Motor integration modules for both straight and curved sections, and multiple mover modules can be controlled simultaneously
- 

High-precision positioning for both straight and curved sections

Basic Parameters

Motor integrated module	C050			C075	
Magnetic plate width (mm)	80	120	160	120	160
Peak thrust (N)	290	435	580	635	847
Max. Speed (m/s)	5			4	
Typical load (kg)	≤40				
Repetitive positioning accuracy (mm)	±0.01				
Power supply voltage (V)	DC 48				
Configuration software	iFTS-Studio				
Communication interfaces	Ether CAT Modbus/TCP PROFINET CC-Link CANopen POWERLINK				
Max. Number of modules	255				
Max. Number of movers	255				
Production line expandability	Both software and hardware support modular expansion				

FTS Layouts



Circular Transport Line



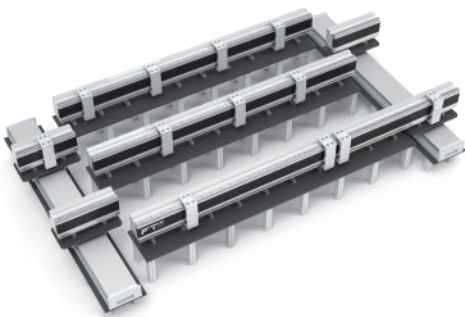
Rectangular Transport Line



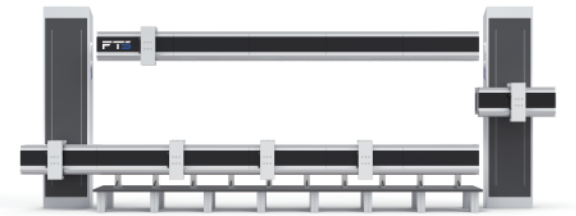
Horizontal Transport Line



Rotary Ferry Line



Horizontal Ferry Line



Vertical Ferry Line

Workpiece Mounting Methods



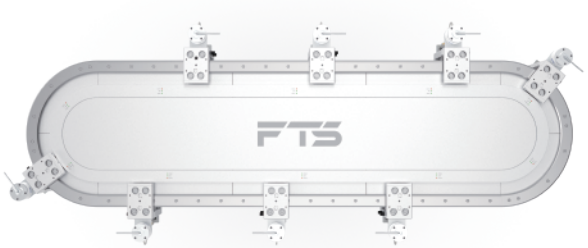
Mounting on the rail top



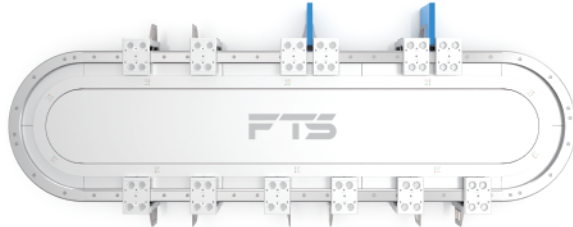
Mounting on the rail slide



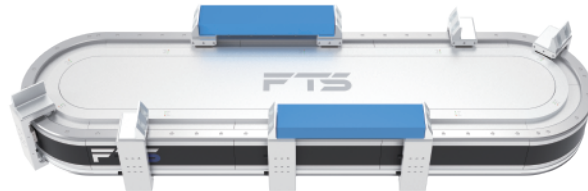
Vertical Side-load



Vertical Top-load



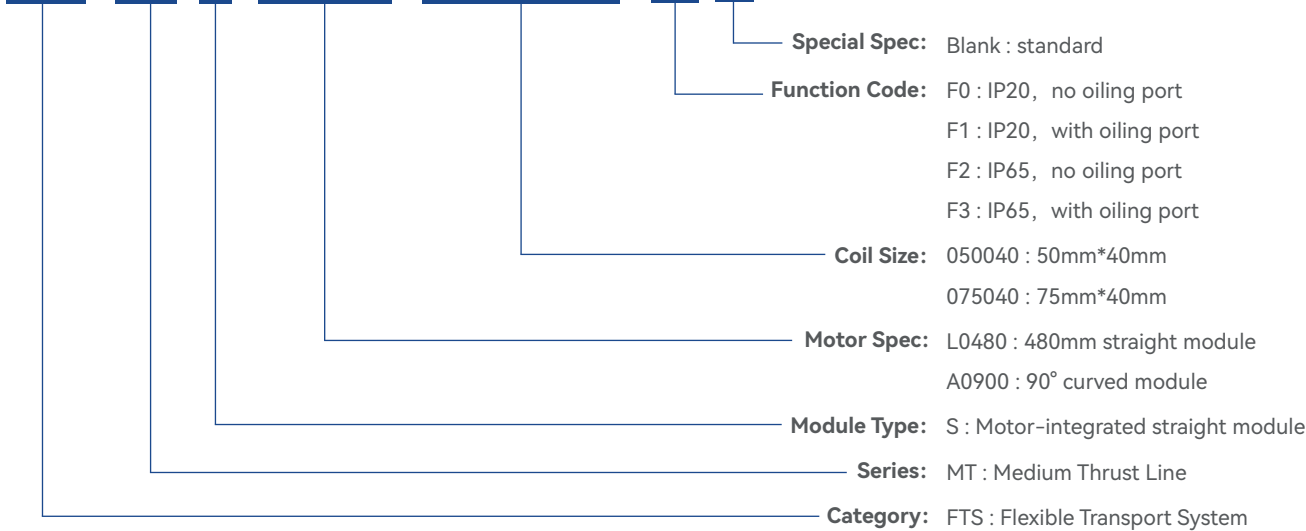
Vertical Dual-mover Load



Horizontal Dual-mover Load

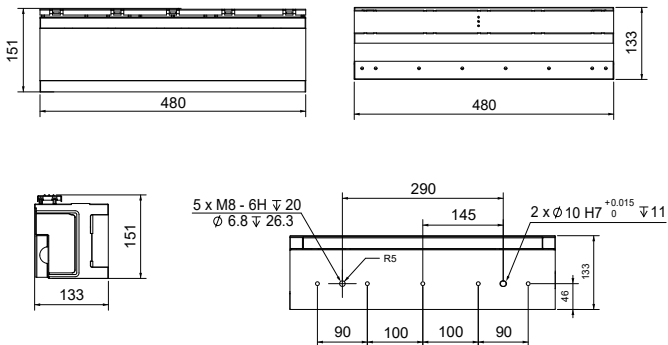
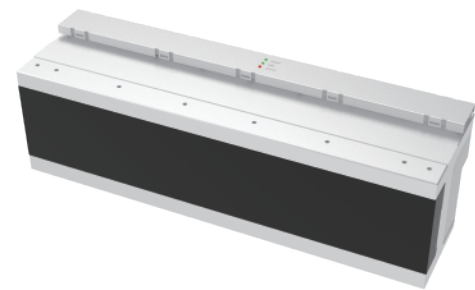
Motor-Integrated Module Model Specifications

FTS-MT-S-L0480-C050040-F0 X



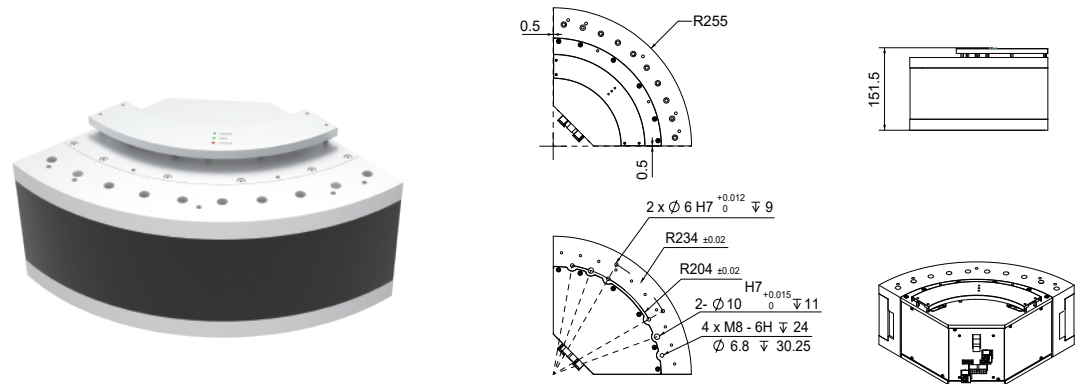
FTS-MT-S-L0480-C050040-F0 / C075040-F0

C050040 Wt:	11.60kg	C075040 Wt:	13.30kg
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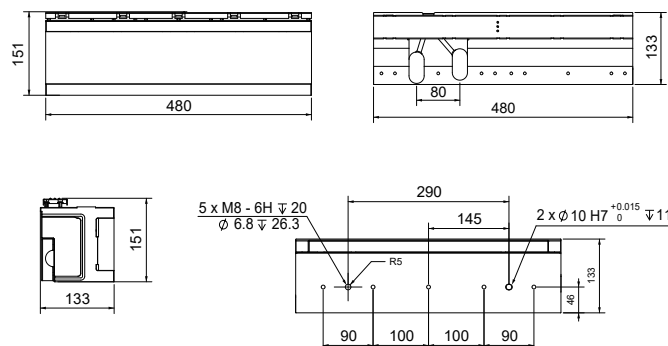
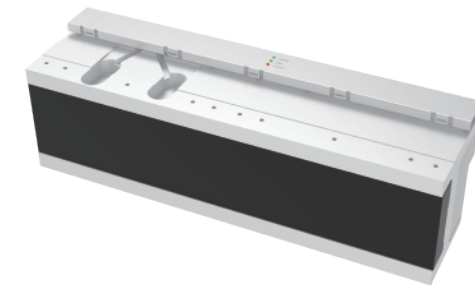
FTS-MT-S-L0480-C050040-F0

Wt:	8.30kg
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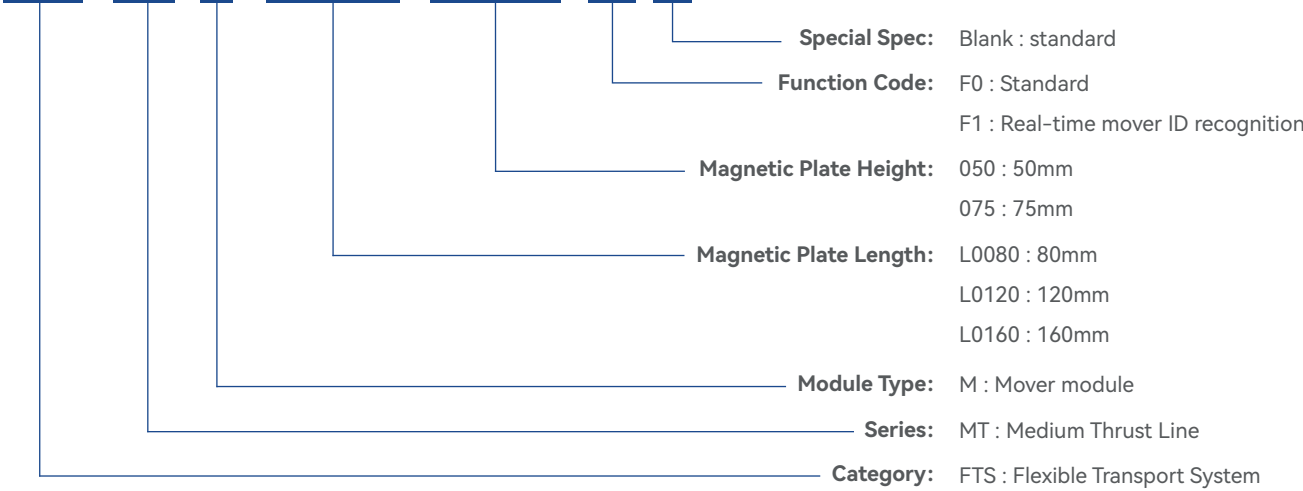
FTS-MT-S-L0480-C050040-F1 / C075040-F1

C050040 Wt:	11.60kg	C075040 Wt:	13.30kg
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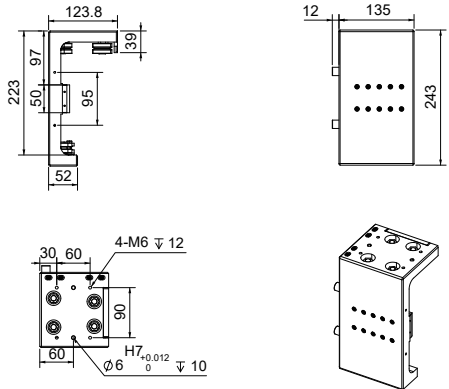
Mover Module Model Specifications

FTS-MT-M-L0160-W050-F0 X



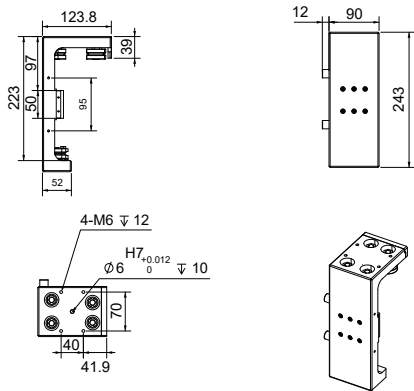
FTS-MT-M-L0120-W050 / W075

W050 Wt: 3.00kg W075 Wt: 3.28kg



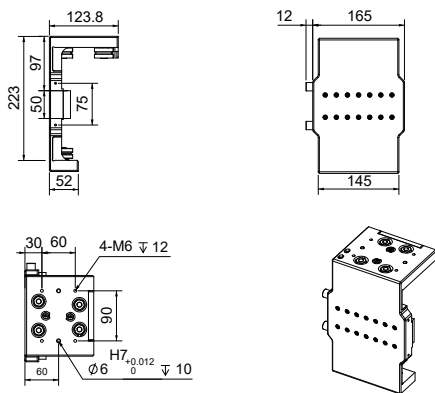
FTS-MT-M-L080-W050 / W075

W050 Wt: 2.00kg W075 Wt: 2.19kg



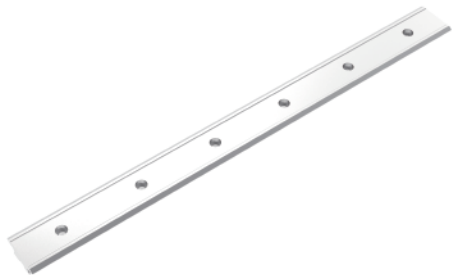
FTS-MT-M-L0160-W050/ W075

W050 Wt: 3.55kg W075 Wt: 3.93kg



FTS-MT Rail

■ Straight Module



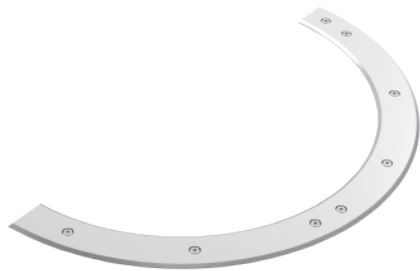
Basic Specifications	
Material	S45 C
Length	Customizable
Width (mm)	44
Mounting hole spacing	Customizable

■ 90° Curved Module



Basic Specifications	
Material	S45 C
Inner Diameter (mm)	424
Width (mm)	44
Outer Diameter (mm)	512

■ 180° Curved Module



Basic Specifications	
Material	S45 C
Inner Diameter (mm)	424
Width (mm)	44
Outer Diameter (mm)	512

FTS-MT Accessories

■ Power Cabinet Module



Basic Specifications	
Model	FTS-PC-06
Dimensions (mm)	560*415*153
Input Voltage (V)	AC 220
Frequency (HZ)	50/60
Rated Power (KW)	6
Output Voltage (V)	DC 24 /48

■ Controller

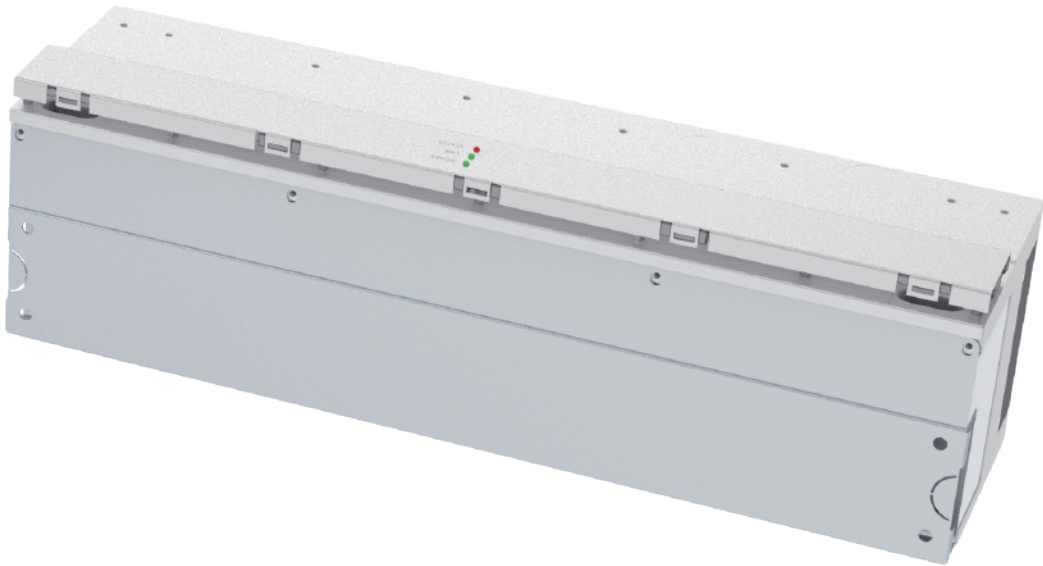
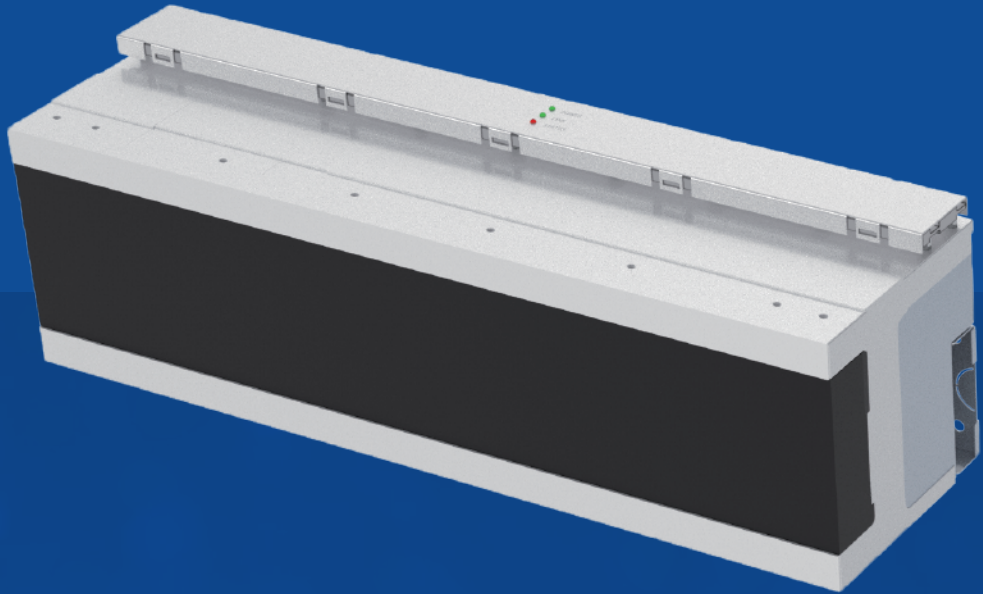


Basic Specifications	
Model	FTS-CS
Power (W)	90
Input Voltage (V)	DC 24
Communication	Ether CAT Modbus/TCP
Control Length (m)	127
Max Movers	255
Temperature (°C)	-30~45
Humidity	20~90 RH (non-condensing)

■ Lubrication System



Basic Specifications	
Power Source	Gas Generator
Operating Pressure (bar)	≤ 5
Timer Range (month)	1~12
Temperature (°C)	-20~55



FTS-MT Lite



±0.1 mm
Repeatability




5-40 kg
Load range





100 N
Max. Thrust





2.5 m/s
Max. Speed


- 

Flexible combination with the FTS – MT line
- 

Flexible layout which can be with horizontal or (and) vertical structure
- 

Quick mover and tooling replacement for different product types
- 

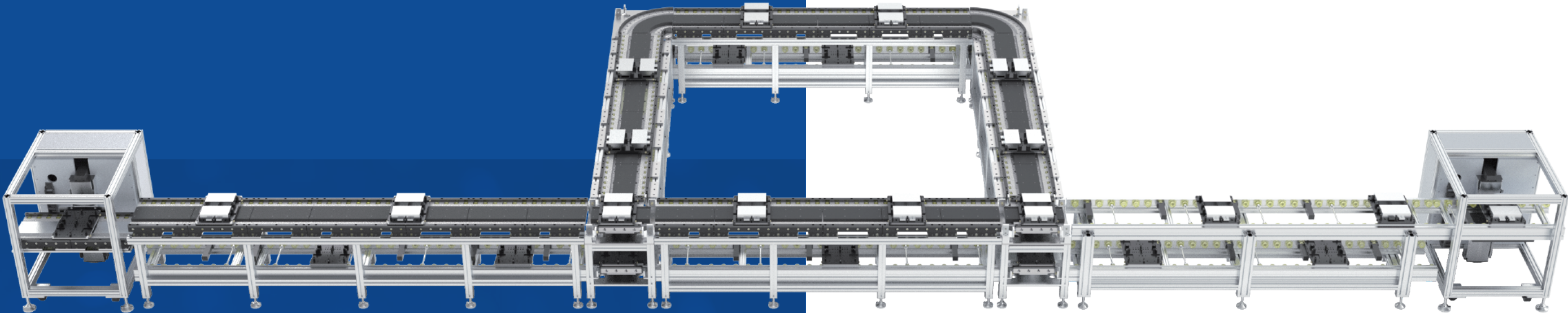
Modular design adapts to various production needs
- 

Customizable workstations with expandable motor integrated modules and movers
- 

Designed for long-term use with multiple product iterations and process upgrades

Basic Parameters

Motor integrated module	C050		
Magnetic plate width (mm)	80	120	160
Peak thrust (N)	50	75	100
Typical load (kg)	≤40		
Max. Speed (m/s)	2.5		
Repetitive positioning accuracy (mm)	±0.1		
Power supply voltage (V)	DC 48		
Configuration software	iFTS-Studio		
Communication interfaces	Ether CAT Modbus/TCP PROFINET CC-Link CANopen POWERLINK		
Max. Number of modules	255		
Max. Number of movers	255		
Production line expandability	Both software and hardware support modular expansion		



FTS-Pallet Transfer (FTS-PT)



±0.1 mm
Repeatability




5-40 kg
Load range





100 N
Max. Thrust





2.5 m/s
Max. Speed


- 

Flexible combination with traditional conveyor lines
- 

Multifunctional module supports lateral movement, lifting and rotation for seamless product transfer
- 

Mover pallets can be removed directly from the conveyor line, allowing for quick replacement
- 

Modular design adapts to various production needs
- 

Customizable workstations with expandable motor integrated modules and movers
- 

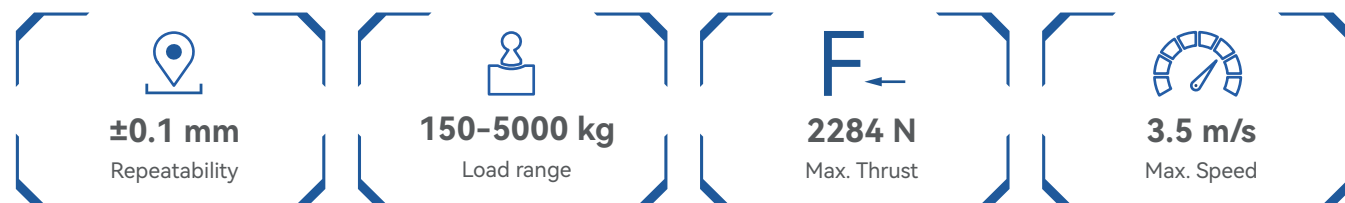
Designed for long-term use with multiple product iterations and process upgrades

Basic Parameters

Motor integrated module	C050		
Magnetic plate width (mm)	80	120	160
Peak thrust (N)	50	75	100
Typical load (kg)	≤40		
Max. Speed (m/s)	2.5		
Repetitive positioning accuracy (mm)	±0.1		
Power supply voltage (V)	DC 48		
Configuration software	iFTS-Studio		
Communication interfaces	Ether CAT Modbus/TCP PROFINET CC-Link CANopen POWERLINK		
Max. Number of modules	255		
Max. Number of movers	255		
Production line expandability	Both software and hardware support modular expansion		



FTS High Thrust Series (FTS-HT)



Spaced motor arrangement improves efficiency and utilization



Supports heavy loads up to 5000 kg



Quick mover and tooling replacement for different product types



Modular design adapts to various production needs



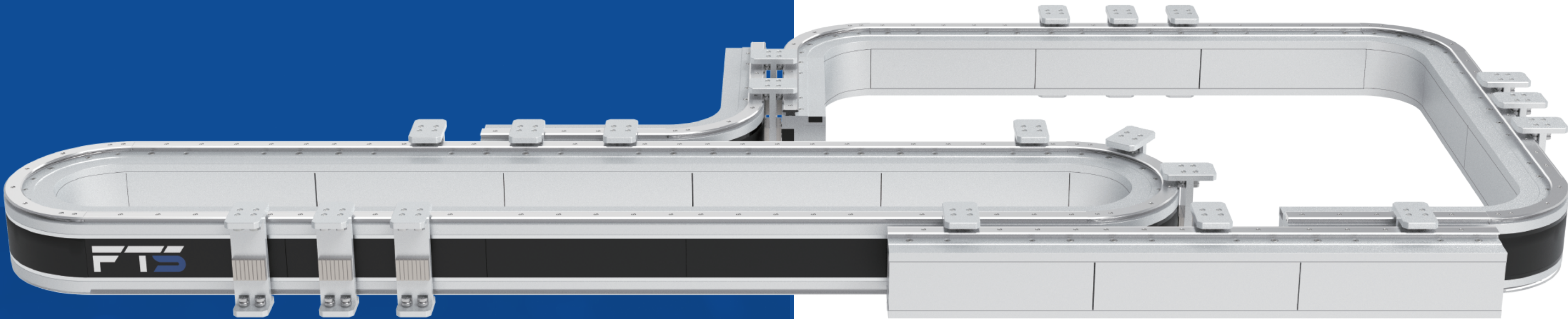
Customizable workstations with expandable motor integrated modules and movers



Designed for long-term use with multiple product iterations and process upgrades

Basic Parameters

Motor air gap (mm)	4	7	10	13	16	19	22
Thrust value (N) with 240 mm magnetic plate	571	483	408	345	292	246	208
Thrust value (N) with 480 mm magnetic plate	1142	965	816	690	583	493	417
Thrust value (N) with 720 mm magnetic plate	1713	1448	1224	1035	739	739	625
Thrust value (N) with 960 mm magnetic plate	2284	1931	1632	1380	1166	986	833
Repetitive positioning accuracy (mm)	±0.1						
Max. Speed (m/s)	3.5						
Configuration software	iFTS-Studio						
Communication interfaces	Ether CAT	Modbus/TCP	PROFINET	CC-Link	CANopen	POWERLINK	
Max. Number of modules	255						
Max. Number of movers	255						
Production line expandability	Both software and hardware support modular expansion						




FTS Light Thrust Diverge Series (FTS-LT)



±0.03 mm
Repeatability



10 kg
Max. Load



580 N
Max. Thrust



5 m/s
Max. Speed


- 

Double-sided magnetic plates, support for changing track easily
- 

Forked reflux, flexible track switching
- 

Quick mover and tooling replacement for different product types
- 

Modular design adapts to various production needs
- 

Customizable workstations with expandable motor integrated modules and movers
- 

Designed for long-term use with multiple product iterations and process upgrades

Basic Parameters

Motor integrated module	C050		
Magnetic plate width (mm)	80	120	160
Peak thrust (N)	290	435	580
Typical load (kg)	≤10		
Max. Speed (m/s)	5		
Repetitive positioning accuracy (mm)	±0.03		
Power supply voltage (V)	DC 48		
Configuration software	iFTS-Studio		
Communication interfaces	Ether CAT Modbus/TCP PROFINET CC-Link CANopen POWERLINK		
Max. Number of modules	255		
Max. Number of movers	255		
Production line expandability	Both software and hardware support modular expansion		

iFCS Control Software

The system offers manual, automatic, and service modes, along with simulation capabilities. It features a standard PLCopen protocol interface, allowing precise individual control of each mover and supporting user-driven secondary development. The workstation scheduling function can be freely configured and combined to meet diverse production requirements, enabling customized manufacturing solutions.



Dynamic Grouping
Movers can be grouped and ungrouped during operation



External Workstation Synchronization
Support electronic gearing and cam motion operation



Intelligent Scheduling
Dynamically bypass malfunctioning stations



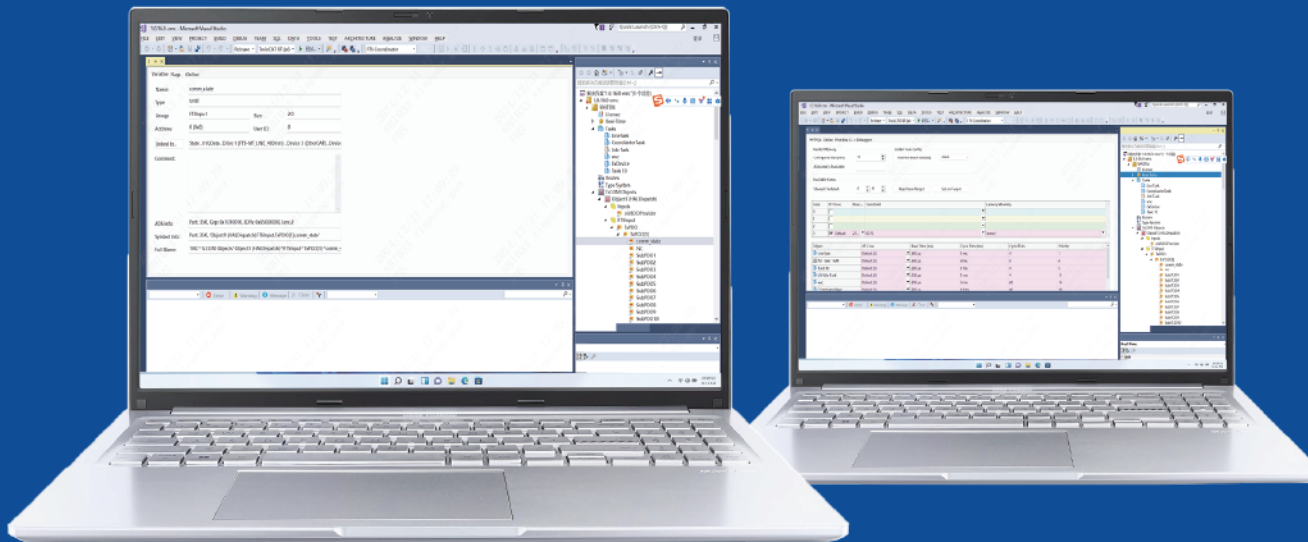
Position Compensation
Real-time and static compensation for greater accuracy



Real-time Mover ID Updates
Support custom ID assignment

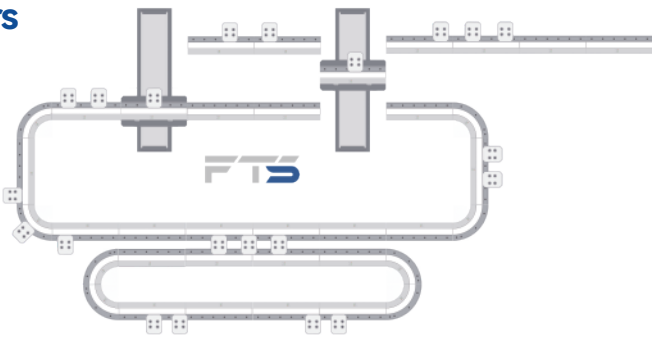


Flexible Speed Configuration
Segmented speed settings across the line



Dynamic Addition and Removal of Movers

- Movers can be added or removed online without stopping production, minimizing downtime and ensuring continuous operation.



Smart Collision Avoidance

- The proprietary collision control algorithm automatically adapts to fixture or product sizes, ensuring precise motion curve without interference.
- Independent collision control for various mover sizes and advanced planning algorithms enhance system safety.



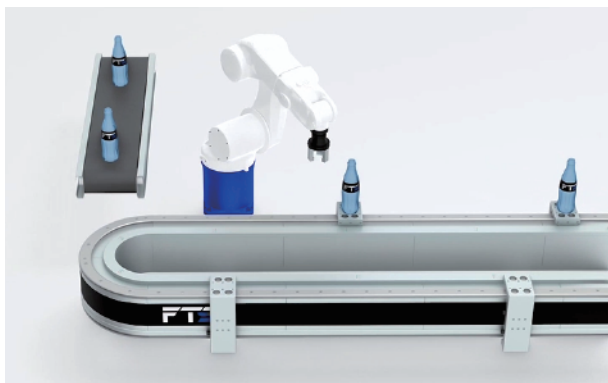
Flexible Adaptation

- Support thrust control mode, enabling it to handle different product sizes and meet diverse production requirements.



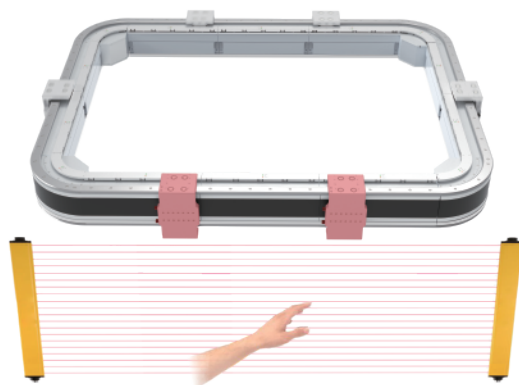
Fast Deployment

- Built on the PLCopen protocol, the planning module simplifies secondary development.
- It supports enabling/disabling single mover and convenient single-axis (single mover) control, making it easy for users to deploy the system quickly.



Synchronization with External Workstation

- Support electronic gears and cam motions.



Configurable Safety Zones

- Using safe signal control, the system can stop movers within specific track sections while allowing the rest of movers to continue.

iFTS – Studio Configuration Software

iFTS Studio simplifies configuration and debugging with intuitive graphical track building and workstation setup. It supports straight paths, loops, and diverging track topologies while enabling multi-terminal parallel debugging to speed up project delivery. The software automatically scans and updates mover counts in real time, allowing movers to be added or removed without shutting down the system. For better visualization, mover positions are displayed on both an oscilloscope and a graphical interface, offering a clear, real-time system overview.



Line Planning
Visual scene configuration



System Configuration
Independent parameter per module



Motion Control
Support up to 255 movers



System Start/Stop
Live system status monitoring



Status Monitoring
Real-time data access

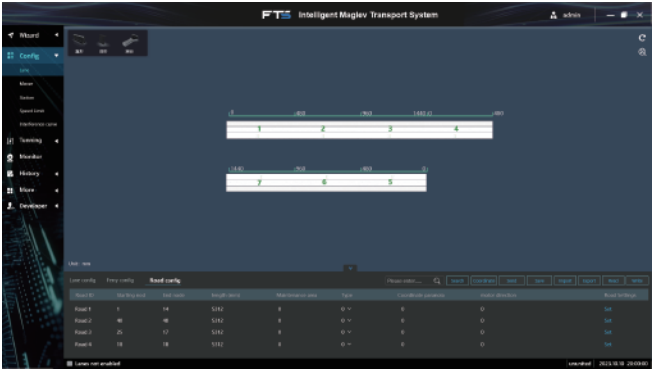


Simulation & Testing
Program preview for cycle optimization



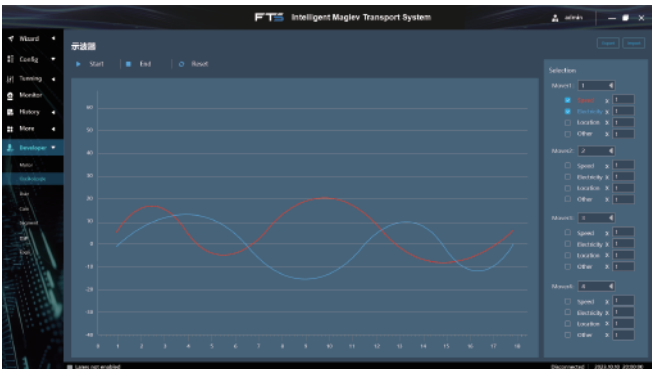
System Configuration

- A simple GUI makes system setup quick and intuitive.
- Versatile track configuration supports offline loading, importing, and exporting of data.
- Various track topologies are available, including straight paths, loops, and diverging.



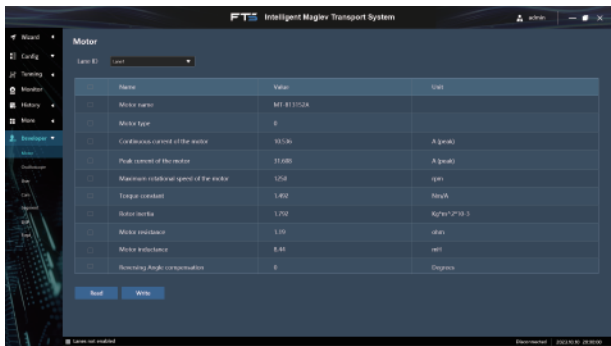
Waveform Display

- An oscilloscope provides real-time monitoring of mover positions for precise analysis.



System Monitoring

- Status lights provide real-time visibility of movers (anti-collision, limits) and conveyor sections (power bus connection, faults) for a more intuitive overview.
- The system also displays communication status for movers and conveyor sections, maintaining historical alarm records and operation logs.

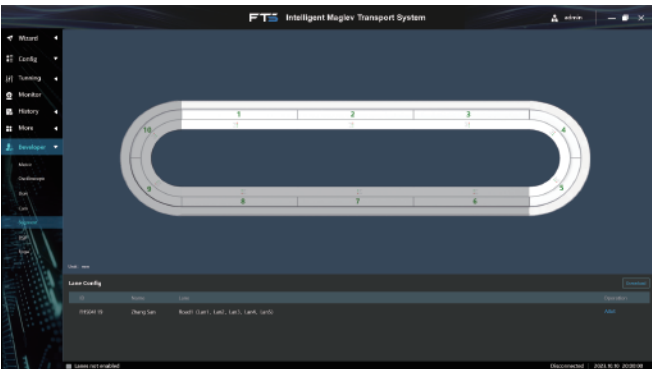


Parameter Writing

- Segment parameters can be set by module and imported with one click — faster and easier.

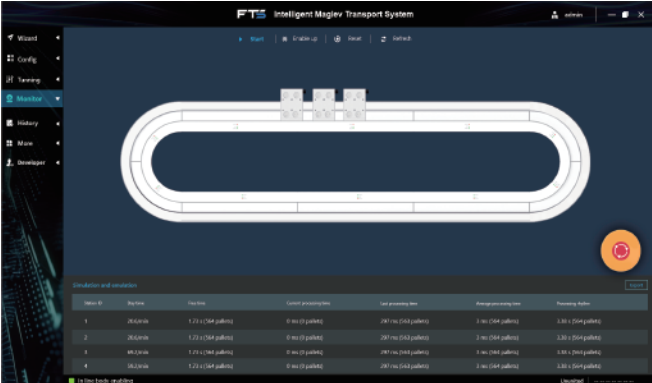
Parallel Debugging

- Support multi-terminal parallel debugging, expediting the delivery time
- Support workstation teaching functionality.

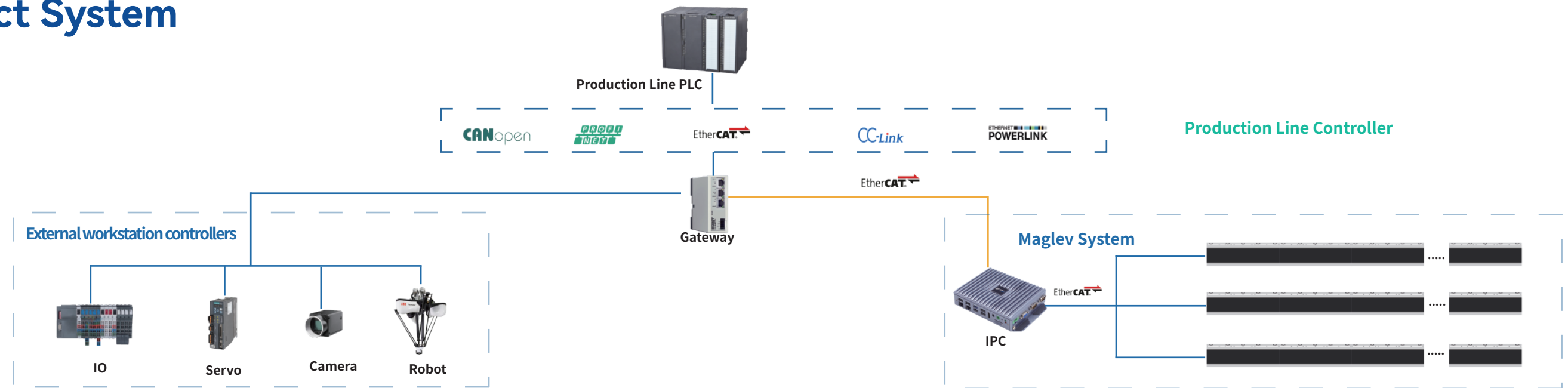


System Simulation

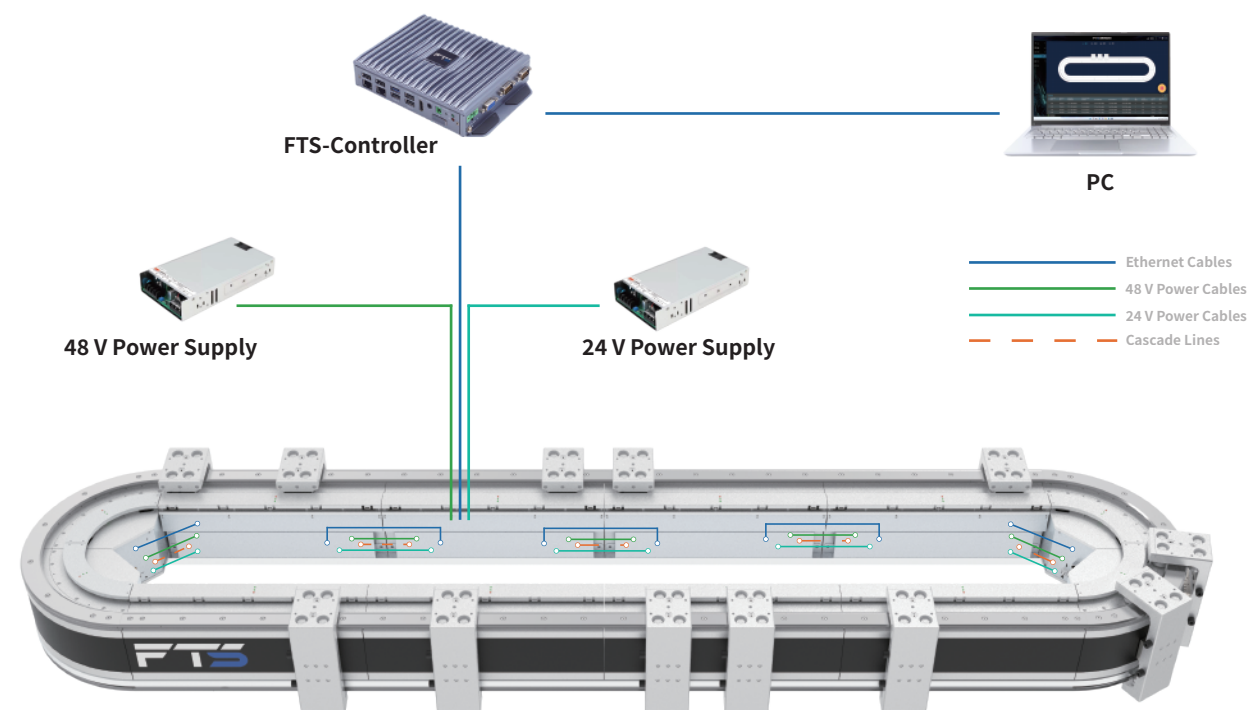
- Sandbox practice for advance planning.



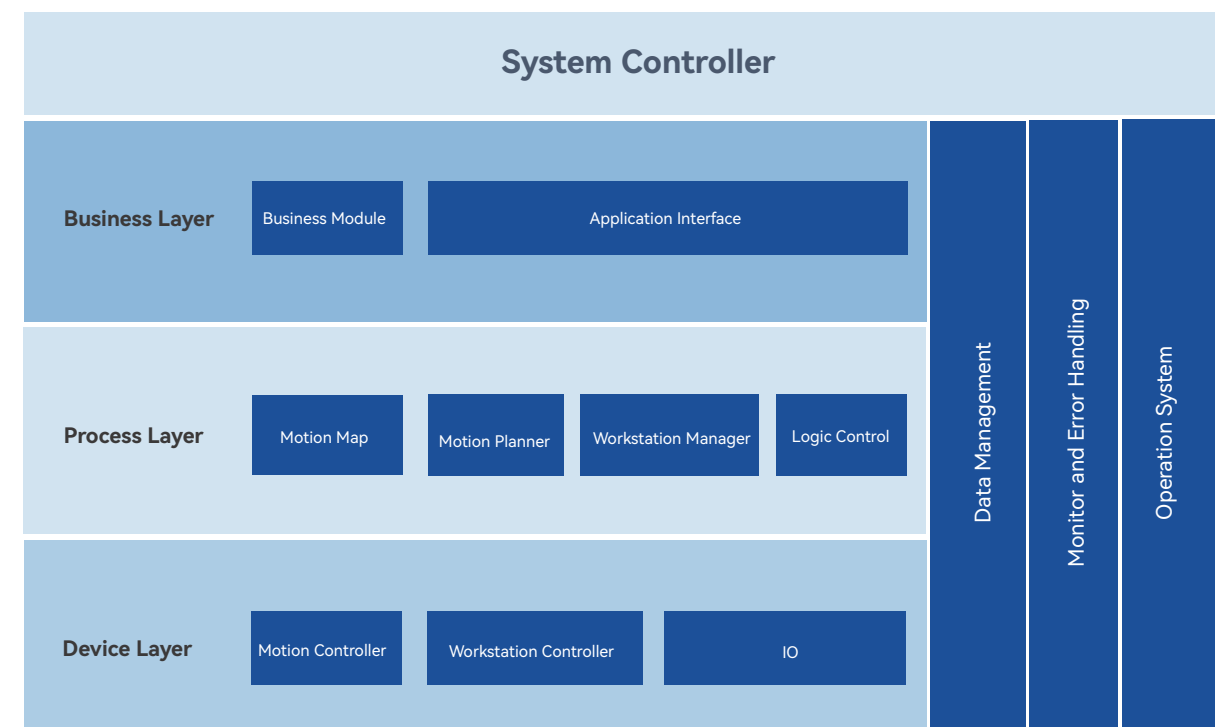
Product System



Hardware System



Software System



Overview of FHS Maglev Solutions

FHS Maglev R&D Center focuses on developing core technologies for maglev systems and providing turnkey solutions.

System-Level Design

By combining expertise in system engineering, mechanics, electronics, industrial design, software, motor drives, and intelligent sensing, high-quality and cost-effective maglev conveyor solutions are provided.

Professional R&D Team

Over 50% of the engineers hold master's or doctoral degrees. With experience from more than 3,000 projects, professional and optimized solutions are available to meet diverse industry requirements.

Efficient Delivery Process

Modular design and integrated solutions enhance operational efficiency, reduce system complexity, improve commissioning, and accelerate delivery timelines.

Reliable Quality Assurance

The rigorous V-model IPD development framework ensures strict control across all process stages, from concept to validation, providing dependable and high-performing products.

Testing Facilities

Comprehensive testing facilities ensure that all products meet stringent requirements for performance, functionality, and reliability.



Motor Drive Test Bench



Waveform Recorder



Repeatability Test



Laser Displacement Sensor



Oscilloscope



Infrared Thermometer



Temperature Rise Test



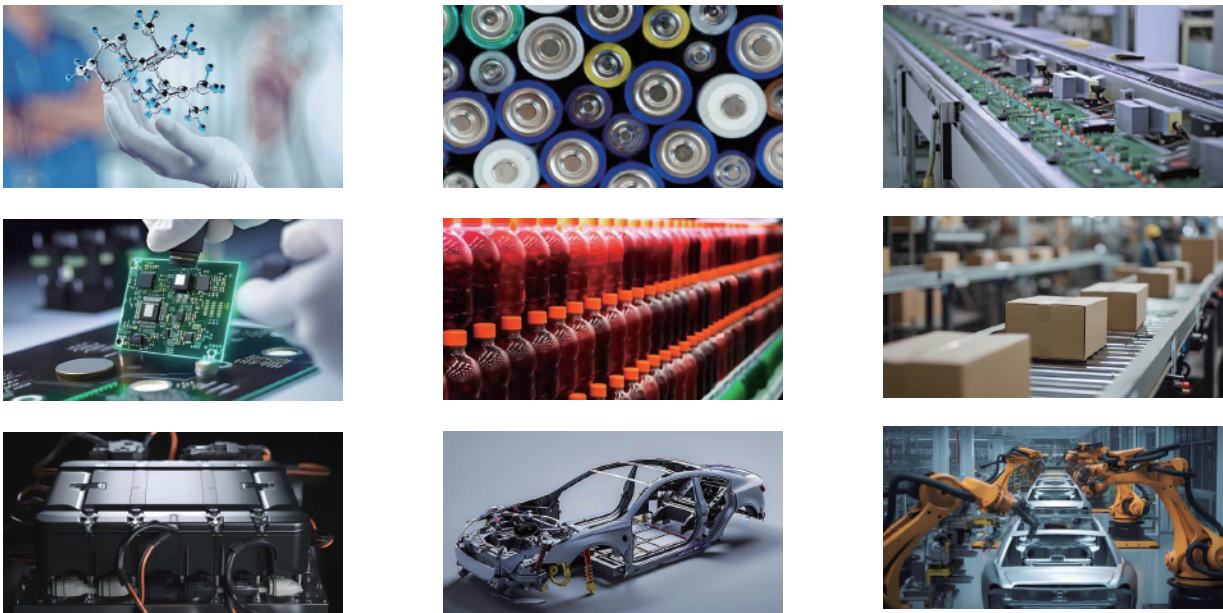
Production Inspection

To guarantee exceptional product performance and reliability, all maglev components undergo stringent inspections. Key metrics such as CTF dimensions, as well as the linearity, parallelism, and flatness of assembled units, are meticulously verified using advanced tools and methods.

3D Inspection		Laser Measurement	
Ring Fixed Block Size Inspection	Mover Size Inspection	Straightness Inspection	Straightness Inspection
			
Articulated Arm Inspection			Micrometer Inspection
Lower Guide Rail Flatness Inspection	Upper Guide Rail Flatness Inspection	Upper and Lower Guide Rail Parallelism Inspection	Lower Guide Rail Assembly Parallelism Adjustment
			

Applications

The FTS maglev transport lines reach a maximum speed of 5 m/s, supports loads up to 5000 kg, and achieves repetitive positioning accuracy of ± 0.005 mm. It is widely used in industries such as lithium-ion batteries, automotive, medical, 3C, and semiconductors, providing intelligent, flexible, and high-value solutions for smart manufacturing.





Lithium Battery

Medical

Daily Consumer Goods

3C Electronics

Semi-conductor

Packaging

Auto Parts Manufacturing

Complete Vehicle Assembly



Global Service Network

Global Service & Partner Network

